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Spin susceptibility and pseudogap in YBa2Cu4O8: An approach via a charge-density-wave instability

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Abstract

The temperature dependence of the spin susceptibility in YBa2Cu4O8 has been calculated on the assumption that a pseudogap in the normal state opens due to a charge-density-wave (CDW) instability. The agreement with experiment is very good. The doping dependence of the pseudogap forming temperature is discussed. The model also predicts an isotope effect of the CDW forming temperature and peculiar features of the Fermi surface.